

Claims

1. A method for arranging the transfer of packets between a wireless data transfer device (MS) and a mobile communication network (NW), in which method for transferring packets between a wireless data transfer device (MS) and a mobile communication network (NW) there are formed temporary packet flows (UL TBF, DL TBF), in which data is transferred in one or more packet data traffic channels (PDTCH) either in the first direction from the mobile communication network (NW) to the wireless data transfer device (MS), or in the second direction from the wireless data transfer device (MS) to the mobile communication network, and in which method, when data transfer ends in a packet flow, a notification of the end of the data transfer is added to the packet (302) to be transmitted, characterized in that when the transfer of packets in said first direction has ended, at least one enquiry message (306) is also sent from the mobile communication network (NW) to the wireless data transfer device (MS), and that if there are packets in the wireless data transfer device (MS) to be sent to the mobile communication network (NW), a response message (307) to said message (306) is sent from the wireless data transfer device, to which response message (307) the wireless data transfer device (MS) sets information about the need to send packets.

2. A method according to Claim 1, characterized in that the formation of temporary block flows is carried out by means of signalling information transmitted in one or more control channels (PCCCH, CCCH, PACCH).

3. A method according to Claim 1 or 2, characterized in that the processing of the information to be transmitted takes place according to a protocol stack, which includes at least an RLC/MAC layer.

4. A method according to any one of the claims 1, 2 or 3, characterized in that said reply message (307) is a request message for the allocation of packet resources.

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5. A method according to any one of the claims 1 to 4, characterized in that advantageously the last transmitted packet (302) is used as the enquiry message (306).

5 6. A method according to any one of the claims 1 to 4, characterized in that the Packet Power Control/Timing Advance message is used as the enquiry message (306).

10 7. A method according to any one of the claims 1 to 4, characterized in that the Packet Uplink Assignment message is used as the enquiry message (306).

15 8. A method according to any one of the claims 5, 6 or 7, characterized in that the transmission of the enquiry message (306) is repeated, whereby the following steps are also performed in the method:

— the wireless data transfer device transmits a reply message (307), to which the wireless data transfer device (MS) sets information about the need to transmit packets,

20 — said reply message (307) is received in the mobile communication network and it is examined whether said information about the need to transmit packets has been set in the reply message, and if the information about the need to transmit packets has been set, the formation of a temporary block flow from the wireless data transfer device to the
25 mobile communication network is started, otherwise said enquiry message (306) is transmitted again.

30 9. A method according to any one of the claims 1 to 8, characterized in that the mobile communication network is a GPRS packet-switched network.

35 10. A method according to any one of the claims 1 to 5, in which the wireless data transfer device (MS) has at least an active mode and an idle mode, characterized in that if the wireless data transfer device (MS) does not have packets to be transferred when the

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said enquiry message (306), and means (CPU) for setting information about the need to send packets in said reply message (307).

14. A data transfer system according to Claim 13, characterized in that the formation of temporary block flows is arranged to be performed by means of signalling information transmitted in one or more control channels (PCCCH, CCCH, PACCH).

15. A data transfer system according to Claim 13 or 14, characterized in that a protocol stack for processing the information to be transmitted has been formed in the wireless data transfer device (MS) and the mobile communication network (NW), and that the protocol stack comprises at least an RLC/MAC layer.

16. A data transfer system according to any one of the claims 13, 14 or 15, characterized in that said reply message (307) is a request message for the allocation of packet resources.

17. A method according to any one of the claims 13 to 16, characterized in that the mobile communication network is a GPRS packet-switched network.

18. A wireless data transfer device for being used in a data transfer system, in which information is arranged to be transferred in packet form between a wireless data transfer device (MS) and a mobile communication network (NW), and which data transfer system comprises means (RF, BTS) for transferring packets between the wireless data transfer device (MS) and the mobile communication network (NW) in temporary block flows (UL TBF, DL TBF), in which information is arranged to be transferred in one or more packet data traffic channels (PDTCH) either in the first direction from the mobile communication network (NW) to the wireless data transfer device (MS), or in the second direction from the wireless data transfer device (MS) to the mobile communication network (NW), characterized in that the wireless data transfer device (MS) also comprises at least

— means (RF) for receiving a enquiry message (306) sent from the mobile communication network (NW), which

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enquiry message (306) has been sent after the transfer of packets has stopped in said first direction,

— means (CPU) for examining whether the wireless data transfer device (MS) has packets to be sent to the mobile communication network (NW),

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— means (CPU) for forming a reply message (307) to said enquiry message, and

— means (CPU) for setting information about the need to send packets to said reply message (307).

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19. A wireless data transfer device (MS) according to Claim 18, characterized in that the wireless data transfer device (MS) comprises means (RF) for sending an acknowledgement message (304) to the mobile communication network (NW) when the transfer of packets has stopped, and means (CPU) for setting in said acknowledgement message (304) at least information about the need to send packets.

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20. A wireless data transfer device (MS) according to Claim 19, characterized in that the wireless data transfer device (MS) comprises means (CPU) for setting in said acknowledgement message (304) information about the time of transmission of the enquiry message (306).

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